

WHAT IS CLAIMED IS:

1. A by-product elimination device used in a power generation system, comprising at least any one of:

5 (a) a fuel pack provided with a fuel charged portion having a power generation fuel having a liquid or gas containing hydrogen charged therein; and

(b) a power generation module which can be attached to or detached from said fuel pack, the module including a reforming portion which transforms said power generation fuel supplied from said fuel charged portion into first gas containing hydrogen gas and carbon dioxide as main components, and a fuel cell which generates an electrical energy by using the hydrogen gas contained in said first gas,

10 said by-product elimination device further comprising an absorbent charged portion which selectively absorbs carbon dioxide contained in said first gas fed from said reforming portion and feeds second gas whose carbon dioxide concentration is lowered by said first gas to said fuel cell.

15 2. The by-product elimination device according to claim 1, wherein the volumetric capacity of said absorbent charged portion is increased as carbon dioxide is absorbed.

25 3. The by-product elimination device according to claim 1, wherein said absorbent charged portion has

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calcium oxide or calcium hydroxide.

4. The by-product elimination device according to claim 1, wherein said absorbent charged portion includes a carbon dioxide absorption portion and a calcium carbonate collection portion containing calcium carbonate generated in said carbon dioxide absorption portion.

5. The by-product elimination device according to claim 4, wherein said carbon dioxide absorption portion supplies to said calcium carbonate collection portion calcium carbonate generated as carbon dioxide is absorbed.

6. The by-product elimination device according to claim 4, wherein said carbon dioxide absorption portion contains calcium oxide or calcium hydroxide.

7. The by-product elimination device according to claim 1, wherein said absorbent charged portion includes a carbon dioxide absorption portion, a calcium carbonate collection portion which collects calcium carbonate generated in said carbon dioxide absorption portion, and a water absorption portion which absorbs water generated in said carbon dioxide absorption portion.

8. The by-product elimination device according to claim 7, wherein said water absorption portion supplies to said carbon dioxide absorption portion calcium hydroxide generated as water is absorbed.

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9. The by-product elimination device according to claim 8, wherein said carbon dioxide absorption portion supplies to said calcium carbonate collection portion calcium carbonate generated as carbon dioxide is absorbed.

10. The by-product elimination device according to claim 7, wherein said water absorption portion contains calcium oxide.

11. The by-product elimination device according to claim 7, said carbon dioxide absorption portion contains calcium hydroxide.

12. The by-product elimination device according to claim 1, wherein a reforming reaction in said reforming portion includes a first reaction which generates hydrogen gas and a second reaction which reforms carbon monoxide generated with said first reaction into carbon dioxide, and said absorbent charged portion can absorb carbon dioxide generated by the second reaction.

13. The by-product elimination device according to claim 1, wherein said reforming portion has at least one of a vapor reforming reaction portion, an aqueous shift reaction portion and a selected oxidation reaction portion.

14. The by-product elimination device according to claim 1, wherein said reforming portion has a vapor reforming reaction portion and an aqueous shift reaction portion, and said absorbent charged portion is

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connected to said vapor reforming reaction portion and said aqueous shift reaction portion.

15 15. The by-product elimination device according to claim 1, further comprising a water collection portion which selectively collects at least water among discharged substances discharged from said fuel cell.

10 16. The by-product elimination device according to claim 1, wherein said by-product elimination device includes a water collection portion which selectively collects at least water among discharged substances discharged from said fuel cell, and said fuel charged portion, said absorbent charged portion and said water collection portion are separated from one another.

15 17. The by-product elimination device according to claim 1, wherein said absorbent charged portion is arranged in said fuel pack, and said by-product elimination device has a path used for feeding the first gas fed from said reforming portion to said fuel pack from said power generation module and a path used
20 for feeding the second gas fed from said absorbent charged portion to said power generation module from said fuel pack.

25 18. The by-product elimination device according to claim 1, wherein said reforming portion generates the first gas from said power generation fuel by an exothermic reaction, and said absorbent charged portion is set so as to supply heat generated by absorbing

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carbon dioxide to said reforming portion.

19. A fuel pack which can be connected to a power generation module without restraint, comprising:

5 a fuel charged portion which contains a fuel to be supplied to a reforming portion which generates hydrogen and carbon dioxide from said fuel, and whose volumetric capacity is reduced as carbon dioxide is generated in said reforming portion; and

10 a carbon dioxide absorption portion which absorbs carbon dioxide generated by said reforming portion and whose volumetric capacity is increased as carbon dioxide is generated in said reforming portion.

20. A fuel pack which can be connected to a power generation module without restraint, comprising:

15 a fuel charged portion which contains a fuel to be supplied to a reforming portion which generates mixed gas containing hydrogen and a first by-product from said fuel, and whose volumetric capacity is reduced as said first by-product is generated in said reforming portion;

20 a first by-product absorption portion which generates a second by-product by absorbing said first by-product from said mixed gas, and whose volumetric capacity is increased as said first by-product is generated in said reforming portion; and

25 a second by-product absorption portion which absorbs said second by-product in a mixture including

10053698-012202

said hydrogen and said second by-product fed from said first by-product absorption portion.

21. The fuel pack according to claim 20, which further comprises a third by-product absorption portion which absorbs a third by-product from a fuel cell which generates said third by-product as power is generated by using the hydrogen fed from said second by-product absorption portion.

22. The fuel pack according to claim 20, wherein said first by-product absorption portion and said second by-product absorption portion are connected to each other, and said third by-product absorption portion is separated from said first by-product absorption portion and said second by-product absorption portion.

23. A fuel pack which can be connected to a power generation module without restraint, comprising:

a fuel charged portion which contains a fuel to be supplied to a reforming portion which generates mixed gas including hydrogen and a first by-product from said fuel, and whose volumetric capacity is reduced as said first by-product is generated in said reforming portion;

a first by-product absorption portion which absorbs said first by-product from said mixed gas, and whose volumetric capacity is increased as said first by-product is generated in said reforming portion; and

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a second by-product absorption portion which
collects a second by-product from a fuel cell which
generates power by using said hydrogen fed from said
first by-product absorption portion, and whose
5 volumetric capacity is increased as power is generated
in said fuel cell.

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